

# PATENT ABSTRACTS OF JAPAN

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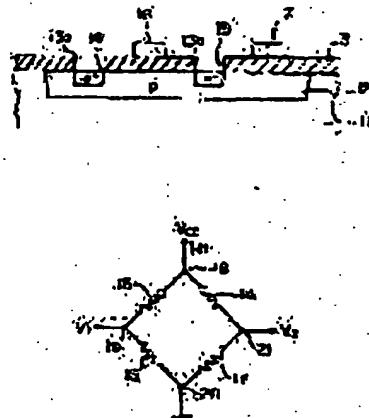
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(21) Application number : 02-127934	(71) Applicant : TOYOTA AUTOM LOOM WORKS LTD
(22) Date of filing : 17.05.1990	(72) Inventor : MORI SHOGO NONAKA YOSHINORI

## (54) SEMICONDUCTOR DEVICE EQUIPPED WITH TEMPERATURE DETECTION FUNCTION

### (57) Abstract:

**PURPOSE:** To simplify a manufacturing process and to detect a temperature with high accuracy by a method wherein a resistance bridge, for temperature detection use, which is composed of a plurality of n+ type diffusion resistances, a plurality of polysilicon resistances and a plurality of electrodes is incorporated directly inside a semiconductor device.

**CONSTITUTION:** A p-type diffusion region 12 is formed in a prescribed region of an n-type semiconductor substrate 11; the whole surface on it is covered with an insulating film 13; and n+ type diffusion resistances 14, 15 are formed in two parts in the region 12 via a window 13a formed in the film 13. Polysilicon resistances 16, 17 are formed in two parts on the film 13. The resistances 14, 15 are formed so as to have the same temperature coefficient and the same resistance value; and the resistances 16, 17 are formed in the same manner. In addition, an electrode 18 is formed from one end of the resistance 14 to one end of the resistance 16; an electrode 19 is formed from the other end of the resistance 16 to one end of the resistance 15; an electrode 20 is formed from the other end of the resistance 15 to one end of the resistance 17; and an electrode 21 is formed from the other end of the resistance 17 to the other end of the resistance 14. Thereby, a resistance bridge is constituted, a temperature can be detected with high accuracy and a manufacturing process can be simplified.



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